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Horst Keller

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EXAMINER

KHATRI, PRASHANT J

ART UNIT

PAPER NUMBER

1794

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/575,018	Applicant(s) KELLER ET AL.	
	Examiner PRASHANT J. KHATRI	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/7/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: Title has quotation marks before first word. Additionally, it is noted that common U.S. practice has the following title "Brief Description of the Drawings" placed before any description of the drawings.

Appropriate correction is required.

2. The abstract of the disclosure is objected to because the title of the abstract is supposed to be titled "Abstract" not "Summary" as presently done. It is also noted that the abstract contains commas, which are standard European practice representative of decimal points; however, it is noted that US practice uses decimal points. Correction is required. See MPEP § 608.01(b).

Claim Objections

3. Claim 10 is objected to because of the following informalities: a decimal point is placed in the place of a comma for the temperature. Examiner assumes it is 1100C and not 1.1C. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

7. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear as to the phrase "the fiber structure of the insulating element is determined exempt of bead". Additionally, it is also unclear as to the scope of the phrase "a portion of the bonding agent which referred to the fiber mass of the insulating element". Clarification to these phrases is needed.

8. Claim 1 recites the limitation "the fiber mass" in line 7. There is insufficient antecedent basis for this limitation in the claim.

9. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear as to the scope of the term "related" in regards to the fiber mass of the insulating element.

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10. Claims 4 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear to Examiner the scope of the term "particularly" in line 1 given that it is not clear what the insulating element is suitable for. Examiner would like to advise Applicant to remove the term and clarify as to the scope of the claim. Further, it is not clear as to the scope of the term "similar" for the above reasons.

11. Claim 5 recites the limitation "the insulation ship bulkhead" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

12. In claim 6, it is not clear what is meant by "arithmetic procedure" or how the insulating element would feature an "arithmetic procedure".

13. Claim 7 recites the limitation "the bead portion" in line 2. There is insufficient antecedent basis for this limitation in the claim.

14. Given that claim 1 is drawn to the "fiber structure is determined exempt of beads", the scope of claim 7 is confusing as claim 7 is drawn to a fiber structure containing less than 1% of beads. Thus, it is not clear what amount of beads is present.

15. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

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regards as the invention. The compression ratio is unclear as the standard format for compression ratios comprises a higher number to the left of the colon mark and the lower number to the left of the colon mark. It is also unclear as to the minimum gross density value.

16. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what the phrase "surpassing insulation of vessel's frames" means.

17. The scope of claim 12 is confusing given that the claim is drawn to a molded section. However, both claims 1 and 11 upon which claim 12 depends on are drawn to an insulating element.

18. Claim 12 recites the limitation "the unit" in line 2. There is insufficient antecedent basis for this limitation in the claim.

19. Regarding claim 12, the phrase "like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

20. Claim 14 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention. It is unclear what the material listed as "Other" is comprised of.

21. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 1 recites the broad recitation "insulating element", and the claim also recites "especially insulating element utilized as fire and/or thermal and/or sound protection", which is the narrower statement of the range/limitation. In the present instance, claim 3 recites the broad recitation 0.5 to 3 weight %, and the claim also recites 0.5 to 2 weight % which is the narrower statement of the range/limitation. In the present instance, claim 4 recites the broad recitations 0.8 to 1.4 kg/m², 1.2 to 1.8 kg/m², and 2.0 to 2.5 kg/m², and the claim also recites 1.2 kg/m², 1.6 kg/m², and 2.3 kg/m² respectively which is the narrower

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statement of the range/limitation. In the present instance, claim 5 recites the broad recitations 0.8 to 1.4 kg/m², 2.3 to 3.0 kg/m², and 3.2 to 4.3 kg/m², and the claim also recites 1.2 kg/m², 2.7 kg/m², and 4.0 kg/m² respectively which is the narrower statement of the range/limitation. In the present instance, claim 8 recites the broad recitations of a ratio of 1:2 and upper gross density of 50 kg/m³, and the claim also recites a ratio of 1:3 and upper gross density of 30 kg/m³ which is the narrower statement of the range/limitation. In the present instance, claim 9 recites the broad recitations gross densities of 45 to 75 kg/m³ and bonding agent content of less than 2 weight %, and the claim also recites gross densities of 55 to 65 kg/m³ and bonding agent content of about 0.5 to 1.5 weight % which is the narrower statement of the range/limitation. In the present instance, claim 14 recites the broad recitation as shown in column 2 of the table, and the claim also recites preferable amounts which are the narrower statements of the ranges/limitations.

Claim Rejections - 35 USC § 103

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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23. Claims 1, 3-7, 9-11, and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Battigelli et al. (**US 5601628**) in view of Jensen et al. (**US 5614449**) and Vignesoult et al. (**US 6284684**).

24. Battigelli et al. disclose a method for the production of mineral wool and mineral wool produced thereof. Prior art discloses a material composition comprising common mineral-based compounds found within comparable silica-based insulation materials (**col. 9, lines 1+**). Concerning the density of the material, prior art discloses the material produced have an F/5g value that corresponds to a Micronaire value wherein said Micronaire value corresponds to having a density lower than 40 kg/m^3 (**col. 9, lines 39+**). Furthermore, it is established that lighter products will have a Micronaire value of 3 and below whereas heavier products will have a Micronaire value of 4 (**col. 9, lines 44+**). Examiner takes the position that the values for the F/5g as shown by prior art within the table of less than 3 will therefore have a lower density. As shown by prior art, fiberization occurs at temperatures of at least 1200°C , therefore Examiner takes the position that the fusion point of the material would therefore occur at a temperature higher than 1200°C , which would meet the parameters of the present claim. It is noted, however, that prior art discloses that the formation of beads is dependent on viscosity (**col. 4, lines 35+**) and the pressure of the blower within the apparatus (**col. 8, lines 42+**). Examiner takes the position that the reduction of beads is an optimization feature and may be adjusted by varying the pressure of the blower. It is noted that the process is an internal centrifuging process in a spinner (**abstract**). However, prior art is silent to the use of a binding, the exact claimed composition, and fiber diameters produced.

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25. Jensen et al. disclose a product comprising vitreous fibers wherein conventional binder materials may be used in an amount from 0.5 to 4% (**col. 4, lines 59+**). It is noted that the vitreous fibers have a composition similar to that which is presently claimed. Further, prior art discloses a fiber diameter from about 3.0 microns to 4.0 microns (**col. 7 table at the top of the page**).

26. Vignesoult et al. disclose a mineral wool composition comprising the following:

SiO ₂	39-55%,
Al ₂ O ₃	16-27%,
CaO	3-35%,
MgO	0-35%,
Na ₂ O	0-35%,
K ₂ O	0-35%,
R ₂ O (Na ₂ O + K ₂ O)	10-17%,
P ₂ O ₅	0-3%,
Fe ₂ O ₃	0-35%,
B ₂ O ₃	0-8%,
TiO ₂	0-5%,

27. The disclosed ranges as shown above encompass or equal the presently claimed ranges. Prior art further discloses the composition may include 2% to 3% of unanalyzed impurities. Concerning the alkali/earth alkali ratio, Examiner notes that Ex. 2 in Table 1 shows that the ratio is less than 1 (**col. 4, lines 30-31**). Examiner takes the position that the unanalyzed impurities are equivalent to the materials known as "other" as Applicant is silent to the exact composition of the "other" material. As shown by prior art in Table 1, the material exhibits satisfactory levels of biosolubility. Examiner takes the position that the material would therefore meet the standard presently claimed in claim 13. Regarding the thermal conductivity presently claimed in claim 6, Examiner takes the position that since the material resulting from the composition disclosed by Vignesoult et al. in addition to a binding agent and processed by the methods disclosed

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by Battigelli et al. would inherently meet the presently claimed surface weight ranges as the composition and density would meet the present claims. Concerning the standards that are presently claimed in claim 13, Examiner takes the position that if the materials meet the elements that are presently claimed, the material would therefore meet the standards that are presently claimed. Given that the resulting material would be comprised of elements within the presently claimed ranges with a binding material in the claimed range, Examiner takes the position that the surface weight would thereby be the same as that which is presently claimed.

28. Note that while Jensen et al. does not disclose all the features of the present claimed invention, Jensen et al is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely, the use of binders in mineral wool materials in order to decrease the brittleness of the material and in combination with the primary reference, discloses the presently claimed invention.

29. The phrase “surpassing insulation of vessel’s frames” is considered a statement of intended use. The intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). Because the resulting

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material of Battigelli et al. in view of Jensen et al. and Vignesoult et al. is not structurally different from the material as claimed by Applicant, the material as claimed does not provide patentable distinction over the prior art of record.

30. All of the elements were known within the art in individual disclosures; however each is silent to containing all the elements presently claimed. The motivation to combine Jensen et al. to Battigelli stems from the fact that binding agents allow for an increase in strength and decrease in brittleness when the material undergoes compression for shipping. Furthermore, it is noted that the increase in strength decreases the amount of failed products and thereby increasing consumer satisfaction. Therefore, it would have been obvious to one of ordinary skill in the art to apply a binder disclosed by Jensen et al. into the materials disclosed by Battigelli. Additionally, the formation of beads during processing is known within the art to be the cause of product failure. Examiner notes that Battigelli discloses the formation of beads may be reduced by optimizing blower pressure. Therefore, it would have been obvious to one of ordinary skill in the art to adjust the blower pressure to minimize the formation of beads and thereby reduce product failure. Vignesoult et al. disclose a mineral wool composition that encompasses the presently claimed ranges. The motivation to use the composition into the process disclosed by Battigelli is that the composition of Vignesoult yields a material that has satisfactory biosolubility and considered to be less environmentally and physiologically harmful to lifeforms. Thus, it would have been obvious to include this composition to create an environmentally friendly material in

conjunction with a binding material disclosed by Jensen et al., which improve strength for shipping purposes to the processes disclosed by Battigelli.

31. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Battigelli et al. in view of Bernard et al., Jensen et al., and Vignesoult et al. as applied to claim 1 above, and further in view of Balcerowiak et al. (***Journal article***).

32. Battigelli et al., Bernard et al., Jensen et al., and Vignesoult et al. disclose the above; however, prior art is silent to the use of an organic binder.

33. Balcerowiak et al. disclose the use of urea-phenol-formaldehyde binder materials for mineral wool insulation (***Introduction***).

34. The use of urea-based materials as binding agents for mineral wools is well-known throughout the art. The motivation to apply a urea-based material as the binding agent is that the material is less environmentally toxic compared to other materials yet still providing the consumer with a good thermal stability and decrease brittleness of the insulation material. Thus, it would have been obvious to one ordinary skill in the art to apply the binding agent disclosed by Balcerowiak et al. to decrease the brittleness of the material and provide good thermal stability.

35. Claims 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Battigelli et al. in view of Jensen et al. and Vignesoult et al. as applied to claim 1 above, and further in view of Audren et al. (***US 4928898***).

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36. Battigelli et al., Jensen et al., and Vignesoult et al. disclose the above; however, prior art is silent to the compression ratio and lamination.

37. Audren et al. disclose a compression coiling machine for rolling mineral fiber material. Prior art discloses the apparatus is used to produce strips of mineral fiber having densities not exceeding 30 kg/m³ (**col. 4, lines 23+**). Further, prior art discloses the fiber material is disposed onto aluminized paper (**col. 4, lines 21+**). Examiner takes the position that aluminum foil in the broadest sense is simply a layer of aluminum and in this case, the layer of aluminum is disposed onto a surface of paper. It is also noted that prior art discloses a compression ratio of about 4.5. Examiner takes the position that the compression ratio is dependent on the thickness of the mineral fiber and may be adjusted accordingly for maximizing the amount of material shipped.

38. However, note that while Audren et al. do not disclose all the features of the present claimed invention, Audren et al. is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely, the maximum density needed for high compression ratios in order to maximize the amount of material shipped while preventing material from becoming loose and in combination with the primary reference, discloses the presently claimed invention. Thus it would have been obvious to one of ordinary skill in the art to apply the compression process disclosed by Audren et al. to the process of centrifuging disclosed by Battigelli et al. to a composition disclosed by Vignesoult et al. and Jensen

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et al. to yield a product that is strong, lightweight, and able to carry out the needed insulation properties to comparable products.

Conclusion

39. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. WO 89/12032 discloses inorganic fibers comprising similar materials, however, prior art is silent to the binding agent.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PRASHANT J. KHATRI whose telephone number is (571)270-3470. The examiner can normally be reached on M-F 8:00 A.M.-5:00 P.M. (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on (571) 272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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PRASHANT J KHATRI
Examiner
Art Unit 1794

/Callie E. Shosho/

Supervisory Patent Examiner, Art Unit 1794